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Isoxaflutole
Summary Document
Registration Review: Initial Docket
June 2011

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Case # 7242

Approved By:

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Date

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This Preliminary Work Plan and Fact Sheet summarize the Environmental Protection Agency's current position based on the following documents:

1. EFED Registration Review: Preliminary Problem Formulation for Isoxaflutole, June 2, 2011.

2. Isoxaflutole. Human Health Assessment Scoping Document in Support of Registration Review, June 17, 2011.

3. Isoxaflutole: Review of Human Incidents, March 1, 2011.

4. Isoxaflutole Screening Level Usage Analysis (SLUA), August 2, 2010.

5. Appendix A: Uses of Isoxaflutole Considered in Registration Review Work Planning, January 21, 2011.

6. BEAD Chemical Profile for Registration Review: Isoxaflutole, January 21, 2011.

All supporting documents for the registration review of Isoxaflutole are located in docket EPA-HQ-OPP-2010-0979 at www.regulations.gov.

I. PRELIMINARY WORK PLAN

Introduction

The Food Quality Protection Act (FQPA) of 1996 mandated a registration review program. All pesticides distributed or sold in the United States (U.S.) generally must be registered by the Environmental Protection Agency (EPA or the Agency), based on scientific data showing that they will not cause unreasonable risks to human health or the environment when used as directed on product labeling. The registration review program is intended to make sure that, as the ability to assess risk evolves and as policies and practices change, all registered pesticides continue to meet the statutory standard of no unreasonable adverse effects to human health or the environment. Changes in science, public policy, and pesticide use practices will occur over time. Through the registration review program, the Agency periodically reevaluates pesticides to make sure that as change occurs, products in the marketplace can be used safely. Information on this program is provided at: http://www.epa.gov/oppsrrd1/registration_review/.

The Agency is implementing the registration review program pursuant to Section 3(g) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), and will review each registered pesticide every 15 years to determine whether it continues to meet the FIFRA standard for registration. The Agency will consider benefits information and data as required by FIFRA. The public phase of registration review begins when the initial docket is opened for each case. The docket is the Agency's opportunity to state what it knows about the pesticide and what additional risk analyses and data or information it believes are needed to make a registration review decision. After reviewing and responding to comments and data received in the docket during this initial comment period, the Agency will develop and commit to a final work plan and schedule for the registration review of isoxaflutole.

Isoxaflutole is an herbicide active ingredient registered for use on corn for control of broadleaf and grass weeds. Isoxaflutole products are manufactured as emulsifiable concentrates or dry flowables and are applied through various ground methods, such as ground booms and soil incorporation equipment. Isoxaflutole is a Restricted Use Pesticide (i.e., applications of RUPs can be made by certified applicators only) due to concerns over phytotoxicity to non-target plants. There are no registered residential uses. Isoxaflutole was first registered in the U.S. in 1998 and, therefore, it was not subject to the FIFRA reregistration program.

Anticipated Risk Assessment and Data Needs

The Agency anticipates requiring data for use in conducting an ecological risk assessment, including an endangered species risk assessment. The Agency also anticipates updating the human health risk assessment for isoxaflutole. Below is a summary of the issues relevant to the registration review of isoxaflutole and the data the Agency anticipates requiring.

Ecological Risk:

- The most recent isoxaflutole ecological risk assessment was conducted in April 2010 for an Experimental Use Permit (EUP) for use on soybeans.

- The Agency anticipates requiring environmental fate data, included in the list below, to better understand the potential for persistence of isoxaflutole and its degradates in the environment.

- The Agency anticipates requiring data, included in the list below, on isoxaflutole degradates because available data suggests that RPA 202248 may be as toxic to plants as parent isoxaflutole. Also, data suggest that degradates RPA 202248 and RPA 203328 are likely to persist in the environment longer than parent isoxaflutole.

- The Agency has not conducted an ecological risk assessment that supports a complete endangered species determination for isoxaflutole. The ecological risk assessment planned during registration review will allow the Agency to determine whether isoxaflutole's use has "no effect" or "may affect" federally listed threatened or endangered species (listed species) or their designated critical habitats. When an assessment concludes that a pesticide's use "may affect" a listed species or its designated critical habitat, the Agency will consult with the U.S. Fish and Wildlife Service (FWS) and/or National Marine Fisheries Service (NMFS) (the Services), as appropriate.

- On January 19, 2011, the Center for Biological Diversity and the Pesticide Action Network North America filed a lawsuit in the United States District Court for the Northern District of California, against the EPA for allegedly failing to undergo consultation with the U.S. FWS and NMFS regarding the effects of over 350 pesticides, including isoxaflutole, on over 200 endangered and threatened species throughout the United States (Center for Biological Diversity, et al. v. EPA, et al., No. C 11-00293 (N.D.Cal.).

- The Agency anticipates requiring the following data for use in conducting a complete ecological risk assessment, including an endangered species assessment, for isoxaflutole:

  <u>Environmental fate data gaps</u>

  For parent isoxaflutole
  - Guideline No. 835.4100 - Aerobic soil metabolism
  - Guideline No. 835.4300 - Aerobic aquatic metabolism

  For degradate RPA 202248
  - Guideline No. 835.1230 - Adsorption/desorption (batch equilibrium)
  - Guideline No. 835.1240 - Leaching Studies
  - Guideline No. 835.4100 - Aerobic Soil Metabolism
  - Guideline No. 835.4200 - Anaerobic Soil Metabolism
  - Guideline No. 835.4300 - Aerobic Aquatic Metabolism
  - Guideline No. 835.4400 - Anaerobic Aquatic Metabolism

- Guideline No. 835.6200[1] - Environmental Chemistry Analytical Methods and ILV (Water)

Ecological toxicity data gaps

For degradate RPA 202248
- Guideline No. 850.4100 - Terrestrial plant toxicity, Tier II (seeding emergence)
- Guideline No. 850.4150 - Terrestrial plant toxicity, Tier II (vegetative vigor)

For degradate RPA 203328
- Guideline No. 850.2300 - Avian reproduction (bobwhite quail)

For degradates RPA 202248 and 203328
- Guideline No. 850.1300 - Freshwater invertebrate life cycle
- Guideline No. 850.1350 - Saltwater invertebrate life cycle
- Guideline No. 850.1400 - Freshwater and saltwater fish early life stage
- Guideline No. 850.2300 - Avian reproduction (mallard duck)
- Guideline No. 850.5400 - Aquatic non-vascular plant growth Tier II

- Please refer to the June 2, 2011 "*EFED Registration Review Problem Formulation for Isoxaflutole*," available in the docket, for a more detailed discussion of the anticipated ecological risk assessment and data needs.

Human Health Risk:

- The most recent isoxaflutole human health risk assessment was conducted in March 2010 for an Experimental Use Permit (EUP) for use on soybeans.

- The isoxaflutole toxicity endpoint/dose selection and FQPA Safety Factor may be re-evaluated during registration review consistent with current policy.

- The Agency anticipates updating the drinking water exposure assessment.

- During registration review, the Agency may revise the dietary risk assessment if drinking water concentrations, food residues, points of departure, or uncertainty factors are revised.

- Because there are no registered residential uses of isoxaflutole, the Agency does not anticipate conducting a residential exposure assessment.

- The isoxaflutole tolerance expression will be reviewed during registration review to ensure that it appropriately covers the metabolites and degradates of isoxaflutole and that it specifies the residues to be measured for each commodity.

[1] See footnote 7 of 40 CFR 158.1300. EPA anticipates requiring only the environmental chemistry analytical method portion of Guideline No. 835.6200 - Aquatic field dissipation.

- An analytical method for isoxaflutole residues on plants is currently under review by the Agency's Analytical Chemistry Laboratory.

- The Agency expects to update the occupational exposure assessment for isoxaflutole with an assessment of the cancer risk to occupational handlers from use of the dry flowable isoxaflutole formulations. The assumptions used in the exposure and risk calculations are currently different than those used in the previous occupational handler cancer risk assessment for dry flowable isoxaflutole formulations

- The Agency may conduct a quantitative occupational and residential bystander post-application inhalation exposure assessment based on the result of the Agency's evaluation of a March 2010 Scientific Advisory Panel (SAP) report on issues related to volatilization of pesticides.

- The Agency has sufficient data to conduct a human health risk assessment for the registration review of isoxaflutole. Therefore, the Agency does not anticipate requiring human health data for registration review.

- Please refer to the June 17, 2011 "Isoxaflutole Human Health Assessment Scoping Document in Support of Registration Review," available in the docket, for a detailed discussion of the anticipated human health risk assessment and data needs.

Agricultural Health Study

Isoxaflutole is among several agricultural chemicals included in the Agricultural Health Study (AHS). The AHS began in 1993 and is a collaboration of the National Institute of Environmental Health Sciences (NIEHS), the National Cancer Institute (NCI), the EPA, and the National Institute for Occupational Safety and Health (NIOSH). Designed as a large long-term epidemiological study, the AHS collects and analyzes data on the health and work practices of nearly 90,000 farmers and their families in Iowa and North Carolina who enrolled in the study before any disease developed. The study focuses particularly on farmers' exposure to 50 chemicals including many of the most widely used pesticides. As data are collected over a period of years, scientists can compare overall health outcomes for people who differ in whether they have had exposure to various chemicals. While these comparisons cannot conclusively demonstrate how exposure affects health, they can show some statistical associations. More information on the AHS can be found at: http://aghealth.nci.nih.gov. EPA is monitoring the results of the AHS and will consider this study in the registration review of isoxaflutole as appropriate.

Endocrine Disruptor Screening Program

As required by FIFRA and FFDCA, EPA reviews numerous studies to assess potential adverse outcomes from exposure to chemicals. Collectively, these studies include acute, subchronic and chronic toxicity, including assessments of carcinogenicity, neurotoxicity, developmental, reproductive, and general or systemic toxicity. These studies include endpoints which may be

susceptible to endocrine influence, including effects on endocrine target organ histopathology, organ weights, estrus cyclicity, sexual maturation, fertility, pregnancy rates, reproductive loss, and sex ratios in offspring. For ecological hazard assessments, EPA evaluates acute tests and chronic studies that assess growth, developmental and reproductive effects in different taxonomic groups. As part of its most recent registration decision, EPA reviewed these data and selected the most sensitive endpoints for relevant risk assessment scenarios from the existing hazard database. However, as required by FFDCA section 408(p), carfentrazone-ethyl is subject to the endocrine screening part of the Endocrine Disruptor Screening Program (EDSP).

EPA has developed the EDSP to determine whether certain substances (including pesticide active and other ingredients) may have an effect in humans or wildlife similar to an effect produced by a "naturally occurring estrogen, or other such endocrine effects as the Administrator may designate." The EDSP employs a two-tiered approach to making the statutorily required determinations. Tier 1 consists of a battery of 11 screening assays to identify the potential of a chemical substance to interact with the estrogen, androgen, or thyroid (E, A, or T) hormonal systems. Chemicals that go through Tier 1 screening and are found to have the potential to interact with E, A, or T hormonal systems will proceed to the next stage of the EDSP where EPA will determine which, if any, of the Tier 2 tests are necessary based on the available data. Tier 2 testing is designed to identify any adverse endocrine-related effects caused by the substance, and establish a dose-response relationship between the dose and the E, A, or T effect.

Under FFDCA section 408(p), the Agency must screen all pesticide chemicals. Between October 2009 and February 2010, EPA issued test orders/data call-ins for the first group of 67 chemicals, which contains 58 pesticide active ingredients and 9 inert ingredients. Isoxaflutole is not among the group of 58 pesticide active ingredients on the initial list to be screened under the EDSP. Accordingly, as part of registration review, EPA will issue future EDSP orders/data call-ins, requiring the submission of EDSP screening assays for isoxaflutole. For further information on the status of the EDSP, the policies and procedures, the list of 67 chemicals, future lists, the test guidelines and the Tier 1 screening battery, please visit our website: http://www.epa.gov/endo/.

Timeline

The Agency has created the following estimated timeline for the completion of the isoxaflutole registration review.

Registration Review for Isoxaflutole – Projected Registration Review Timeline	
Activities	**Estimated Date**
Opening the Docket	
Open Docket and Public Comment Period	2011 – June
Close Public Comment	2011 – August
Case Development	
Final Work Plan	2011 – November
Issue DCI	2012 – July – Sept.
Data Submission	2014 – July – Sept.
Open Public Comment Period for Draft Risk Assessments	2016 – Jan. – March

Close Public Comment Period	2016 – April – June
Registration Review Decision	
Open Public Comment Period for Proposed Registration Review Decision	2016 – July – Sept.
Close Public Comment Period	2016 – Oct. – Dec.
Registration Review Decision and Begin Post-Decision Follow-up	2017
Total (years)	6

Guidance for Commenters

The public is invited to comment on EPA's preliminary work plan and rationales. The Agency will carefully consider all comments, as well as any additional information or data provided in a timely manner, prior to issuing a final work plan for the isoxaflutole case.

Trade Irritants

Through the registration review process, the Agency intends to solicit information on trade irritants and, to the extent feasible, take steps toward facilitating irritant resolution. Growers and other stakeholders are asked to comment on any trade irritant issues resulting from lack of Maximum Residue Limits (MRLs) or disparities between U.S. tolerances and MRLs in key export markets, providing as much specificity as possible regarding the nature of the concern.

Environmental Justice

EPA seeks to achieve environmental justice, the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, in the development, implementation, and enforcement of environmental laws, regulations, and policies. To help address potential environmental justice issues, the Agency seeks information on any groups or segments of the population who, as a result of their location, cultural practices, or other factors, may have atypical, unusually high exposure to isoxaflutole compared to the general population. Please comment if you are aware of any sub-populations that may have atypical, unusually high exposure, compared to the general population.

Water Quality

Isoxaflutole is not identified as a cause of impairment for any water bodies listed as impaired under section 303(d) of the Clean Water Act[2]. In addition, no Total Maximum Daily Loads (TMDL) have been developed for isoxaflutole[3]. More information on impaired water bodies and TMDLs can be found at the Agency's website[4]. The Agency invites submission of water quality data for this pesticide. To the extent possible, data should conform to the quality standards in Appendix A of the *OPP Standard Operating Procedure: Inclusion of Impaired Water Body and Other Water Quality Data in OPP's Registration Review Risk Assessment and Management*

[2] http://iaspub.epa.gov/tmdl_waters10/attains_nation_cy.cause_detail_303d?p_cause_group_id=885
[3] http://iaspub.epa.gov/tmdl_waters10/attains_nation.tmdl_pollutant_detail?p_pollutant_group_id=885&p_pollutant_group_name=PESTICIDES
[4] http://www.epa.gov/owow/tmdl/

Process[5] in order to ensure they can be used quantitatively or qualitatively in pesticide risk assessments.

Other Information

Stakeholders are also specifically asked to provide information and data that will assist the Agency in refining risk assessments, including any species-specific ecological effects determinations for isoxaflutole. The Agency is interested in receiving the following information:

1. Confirmation on the following label information.
    a. formulations
    b. application methods and equipment
    c. maximum application rates
    d. frequency of application, application intervals, and maximum number of applications per season and per year
    e. geographic limitations on use
2. Use or potential use distribution (*e.g.*, geographical distribution of relevant uses).
3. Use history.
4. Median and 90th percentile reported use rates (lb/A, lb 1K sq.ft) from usage data – national, state and county.
5. Application timing (date of first application and application intervals) by use – national, state, and county.
6. Directly acquired county-level usage data (not derived from state level data).
    a. maximum reported use rate (lb/cc) from usage data – county
    b. median and 90th percentile number of applications – county
    c. total pounds per year – county
    d. the year the pesticide was last used in the county/sub-county area
    e. the years in which the pesticide was applied in the county/sub-county area
7. Typical application interval (days).
8. State or local use restrictions.
9. Ecological incidents (non-target plant damage and avian, fish, reptilian, amphibian, mammalian mortalities, and bee or beneficial insect mortalities) not already reported to the Agency.
10. Monitoring data.

Next Steps

After the 60-day comment period closes, the Agency will consider and respond to any comments received in a timely manner. The Agency expects to issue a Final Work Plan in November of 2011 for isoxaflutole

[5] http://www.epa.gov/oppsrrd1/registration_review/water_quality_sop.htm

II. FACT SHEET

Background Information

- Isoxaflutole case number: 7242
- Isoxaflutole PC Code: 123000; CAS # 141112-29-0
- Isoxaflutole was first registered in 1998 and, therefore, it was not subject to the FIFRA reregistration program.
- Technical registrant: Bayer CropScience, LP
- U.S. residue tolerances for isoxaflutole are listed in 40 CFR 180.537.
- As of June 2011, active registrations include:
    - 8 Section 3 Registrations
    - 20 Section 24(c) Special Local Need Registrations
    - 1 Section 5 Experimental Use Permit
- Pesticide Re-evaluation Division Contact: Jose Gayoso (gayoso.jose@epa.gov)
- Registration Division Contact: Kathryn Montague (montague.kathryn@epa.gov)

Use and Usage Information

For additional details, please refer to "*Isoxaflutole Screening Level Usage Analysis (SLUA)*," August 2, 2010, "*Appendix A: Uses of Isoxaflutole Considered in Registration Review Work Planning*," January 21, 2011 and "*BEAD Chemical Profile for Registration Review: Isoxaflutole*," January 21, 2011," which are available in the isoxaflutole docket.

- Isoxaflutole is an herbicide registered for control of broadleaf and grass weeds on field corn.
- Isoxaflutole is a Restricted Use Pesticide (RUP).
- Isoxaflutole registrations can currently only be used in the following states: Arkansas, Colorado, Illinois, Indiana, Iowa, Kansas, Kentucky, Missouri, Montana, Nebraska, New Mexico, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Tennessee, Texas and Wyoming. These states participated in developing label restrictions to mitigate the possibility of adverse effects to non-target plants.
- Isoxaflutole products are formulated as emulsifiable concentrates and water-dispersible granules (dry flowables) and applied through ground spraying equipment.
- An estimated annual average use of isoxaflutole in the U.S. was 300,000 lbs. from 2000-2008.
- An estimated average of 5% of all U.S. corn was treated with isoxaflutole from 2000-2008.

Recent and Pending Actions

- An EUP for use of isoxaflutole on isoxaflutole-tolerant soybeans was approved April 27, 2010.

- A Section 3 registration for use of isoxaflutole on soybeans is currently under review.

Ecological Risk Assessment Status

The following are key findings from the most recent ecological risk assessment regarding the environmental fate, ecological effects and risks of isoxaflutole. For a detailed discussion, please refer to the June 2, 2011 "*EFED Registration Review Problem Formulation for Isoxaflutole*," located in the docket.

- The most recent isoxaflutole ecological risk assessment was conducted in April 2010 for an EUP for use on soybeans.

- The Agency's Level of Concern (LOC) for terrestrial non-target plants was exceeded for runoff and spray drift exposure routes.

- Runoff from soybean and/or corn fields may contain residues of isoxaflutole parent and degradate RPA 202248. These waters, if used for irrigation on non-target plants, may exceed the Agency's LOC for non-target plants by up to 310X.

- Risk to aquatic plants, birds, mammals, invertebrates, and fish were below the Agency's LOC.

Human Health Risk Assessment Status

The following are key findings from the most recent isoxaflutole human health risk assessments. Please refer to the June 17, 2011 "*Isoxaflutole Human Health Assessment Scoping Document in Support of Registration Review,*" located in the docket, for a detailed discussion of the human health risk assessment status.

- The most recent isoxaflutole human health risk assessment was conducted in March 2010 for an EUP for use on soybeans.

Human Studies

- Past isoxaflutole risk assessments rely in part on data from studies in which adult human subjects were intentionally exposed to a pesticide to determine their dermal and inhalation exposure. Many such studies, involving exposure to many different pesticides, comprise generic pesticide exposure databases such as the Pesticide Handlers Exposure Database (PHED), the Outdoor Residential Exposure Task Force (ORETF) Database, and the Agricultural Reentry Task Force (ARTF) Database. EPA has reviewed all the studies supporting these multi-pesticide generic exposure databases, and has found no clear and convincing evidence that the conduct of any of them was either fundamentally unethical or significantly deficient relative to the ethical standards prevailing at the time the research was conducted. All applicable requirements of EPA's Rule for the Protection of Human Subjects of Research (40 CFR Part 26) have been satisfied, and there is no regulatory barrier to continued reliance on these studies.

Hazard Characterization

- The critical effects resulting from oral administration with isoxaflutole were reported as ocular toxicity in rats, hepatotoxicity (including tumor formation), thyroid tumors in rats and mice, and hematotoxicity in dogs and mice. The liver and ocular toxicities are consistent with the proposed mode of action of isoxaflutole involving inhibition of the hepatic enzyme HPPD that leads to the build-up of tyrosine in the blood and eyes, respectively.

- The Agency has classified isoxaflutole as "likely to be a human carcinogen."

Dietary Risk

- In the most recent dietary risk assessment (2010), acute, chronic, and cancer risk estimates were below the Agency's LOC.

Residential Risk

- Because there are no residential uses of isoxaflutole, a residential risk assessment has not been performed.

Aggregate Risk

- Because there are no residential uses of isoxaflutole, the previous aggregate exposure assessment only considered exposure from food and water. The aggregate risk assessment is the same as the dietary risk assessment and does not indicate a potential risk of concern.

Occupational Risk

- Risk estimates were based on the maximum application rates allowed on registered labels and assumed that the maximum area allowable was treated per day for specific crops.

- In previous human health risk assessments, occupational handler (cancer and non-cancer) risks were not of concern to the Agency.

- Occupational post-application (cancer and non-cancer) risks were also not of concern to the Agency.

Incidents

Ecological

- A review of the Ecological Incident Information System (EIIS, version 2.1), the Aggregate Incident Reports (v. 1.0) database, and the Avian Incident Monitoring System (AIMS) for ecological incidents involving isoxaflutole was completed on 3/16/2011.

These incidents will be described in more detail in the ecological risk assessment of isoxaflutole.

- EIIS contains reports of 460 incidents involving isoxaflutole use on corn from 1999 to 2005. All incidents related to plant damage. The majority (94%) of these incidents involved damage to corn from direct application, while 6% of incidents involved non-target plants. The Aggregate Incident Reports database contained reports of 8105 minor plant incidents that occurred from 1999 to 2010. These incidents involved several formulated products containing isoxaflutole.

- AIMS contained no incident reports for isoxaflutole.

Human Health

- On March 1, 2011, the Agency completed a search for isoxaflutole incidents in the Agency's Incident Data System and none were identified. Based on the lack of incident cases reported, there does not appear to be a concern at this time that would warrant further investigation. The Agency will continue to monitor the incident information and if a concern is triggered, additional analysis will be included in the risk assessment. For further details, please refer to the March 1, 2011 "*Isoxaflutole: Review of Human Incidents*," available in the docket.

Tolerances and International Harmonization

- U.S. permanent tolerances (listed in 40 CFR 180.537) and Maximum Residue Limits (MRLs) are summarized in Attachment 6 of the June 17, 2011 "*Isoxaflutole Human Health Assessment Scoping Document in Support of Registration Review.*"

- There are no established Mexican or Codex MRLs for residues of isoxaflutole. Therefore, there are no issues of compatibility with respect to U.S. tolerances and Codex MRLs. However, as the Canadian tolerance for corn grain contains an additional metabolite (2-metylsulfonyl-4-trifluorometyl benzoic acid), harmonization is not possible at this time. In addition, Canadian MRLs are established for livestock commodities.

Labels

Active FIFRA Section 3 registration labels for isoxaflutole can be obtained from the Pesticide Product Label System (PPLS) website: http://oaspub.epa.gov/pestlabl/ppls.home.

III. Summary of Data Gaps

The table below summarizes the anticipated data requirements for isoxaflutole.

Guideline Number	Study Title	Test Material	Estimated Timeframe (Measured in Months)
835.1230	Adsorption/desorption (batch equilibrium)[1]	TGAI	12
835.1240	Soil Column Leaching[1]	TGAI	12
835.4100	Aerobic Soil Metabolism[1,2]	TGAI	24
835.4200	Anaerobic Soil Metabolism[1,]	TGAI	24
835.4300	Aerobic Aquatic Metabolism[1,2]	TGAI	24
835.4400	Anaerobic Aquatic Metabolism[1]	TGAI	24
835.6200	Aquatic Field Dissipation[1,3]	TEP	24
850.1300	Freshwater Invertebrate Life Cycle[1,4]	TGAI	12
850.1350	Saltwater invertebrate life cycle[1,4]	TGAI	12
850.1400	Freshwater and saltwater fish early life stage[1,4]	TGAI	12
850.2300	Avian reproduction (mallard duck)[1,4] Avian reproduction (bobwhite quail)[4]	TGAI	24
850.4100	Nontarget Area Phytotoxicity Tier II, Seedling Emergence[1]	TEP	12
850.4150	Nontarget Area Phytotoxicity Tier II, Vegetative Vigor[1]	TEP	12
850.5400	Nontarget Area Phytotoxicity Tier II, Aquatic Plant Growth (Algal Plants)[1,4]	TEP	12

[1] Anticipated requirement for isoxaflutole degradate RPA 202248.
[2] Anticipated requirement for parent isoxaflutole.
[3] See footnote 7 of 40 CFR 158.1300. EPA anticipates requiring only the environmental chemistry analytical method portion of this guideline.
[4] Anticipated requirement for isoxaflutole degradate RPA 203328.